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Low-Density, Agrarian-Based Urbanism: A Comparative View

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LOW-DENSITY, AGRARIAN-BASED URBANISM: A COMPARATIVE VIEW

Low-density urbanism in the industrial world is a topic of some dispute and has even been viewed as a unique and transient, modern settlement pattern. But low-density settlements are actually a normal feature of human habitation and are and have been used by every major socio-economic system. In particular, they have been a distinct feature of urbanism in tropical forest environments for many centuries. The analysis offers a long-term perspective on contemporary industrial-based, low-density urbanism.

The great low-density agrarian cities that dominated lowland Mesoamerica, Sri Lanka and mainland South-East Asia between the late first millennium BCE and the mid second millennium CE represent a distinctive path to urban life in tropical forest environments. Their economies and histories may be of some relevance to the modern world because the Maya, Singhalese and Khmer cities all experienced a long process of collapse by the early to mid second millennium CE, apparently associated with substantial reductions in regional populations. Agrarian low-density urbanism appears to have been vulnerable to some combination of social and ecological factors that removed this mode of urban organisation in the five hundred years prior to the European expansion. This paper will place agrarian low-density urbanism in the larger context of low-density settlement patterns worldwide.

Introduction

Attitudes towards low-density urbanism in the industrial world are sharply divided. Industrial low-density urbanism has even been viewed as an undesirable, unique and transient settlement pattern. However, low-density settlements are a normal feature of human habitation and have been used by every major socio-economic system on the planet. In particular, they have been a distinct feature of the agrarian-based urban settlements of the Maya, the Khmer and Singhalese in tropical forest environments between the late first millennium BCE and the mid second millennium CE. Their economies and histories may be of some relevance to the modern world. The agrarian-based, low-density cities appear to have been vulnerable to a combination of social and ecological factors leading to long processes of collapse in the early to mid second millennium CE, apparently associated with substantial reductions in regional populations. Their long endurance and their problematic demise may be of some relevance to how we understand the modern world and its future.

To pursue this topic requires a brief overview of industrial low-density urbanism and the debates about such urbanism which have to be located in the large context of the history of low-density urbanism. The basic point is that low-density urbanism is a rapidly proliferating characteristic of the industrial and the industrialising world. The nineteenth and twentieth century conurbations of industrial Europe and North America are now joined by the megacities of Asia and in particular by the new desakota, the 'ruralurbans' of southern and eastern Asia. These great low-density cities then need to be related to the compact urban centres from which they have grown. We also have to recognise the entire class of agrarian-based urbanism in the tropical forests prior to the sixteenth century CE and then locate those urban traditions in the larger context of low-density settlements as a usual context for human community life.

Debates about Low-Density Urbanism

In the 1950s and 1960s, through a scholarly coincidence, the significance of low-density urbanism was articulated for both the industrial and the pre-industrial world. In the 1950s, Jean Gottman began to describe and define the industrial megalopolis in his famous analysis of the low-density conurbation along the East Coast of the United States of America (Figure 1). Concurrently, Gordon Willey, who had pioneered settlement archaeology through his work in Peru, began to work in lowland Mesoamerica on the Classic Maya settlements of the seventh to tenth centuries CE. Along with Shooks and William Coe at Tikal, he showed that the famous ritual centres were located in extensive settlements of dispersed housemounds, plazas and raised roadways or sacbe (Figure 2). Sabloff has remarked (1990, p. 68) that settlement pattern studies 'have done more to change archaeologists' views of the Maya than any single new procedure.' Likewise Morrill (2006, p. 155) says of Gottman:

> Many academics have attempted to coin terms for their phenomenon of study, but few such terms have been successful. Gottmann's term megalopolis to refer to a string of closely interconnected metropolises was logical and inspired and has become part of the language.

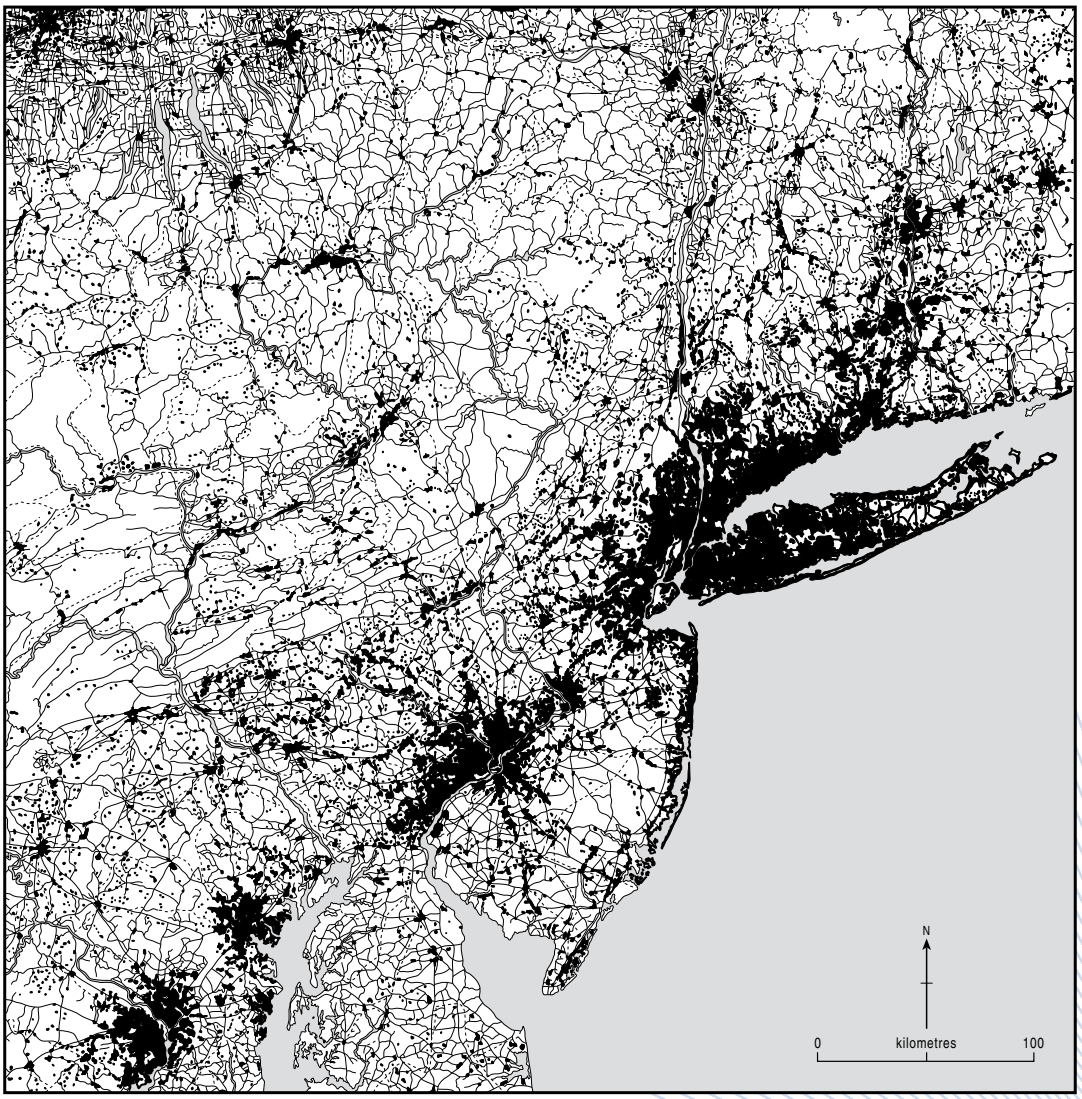

Figure 1: The East Coast Megalopolis (USA) in the 1960s (after Doxiadis).

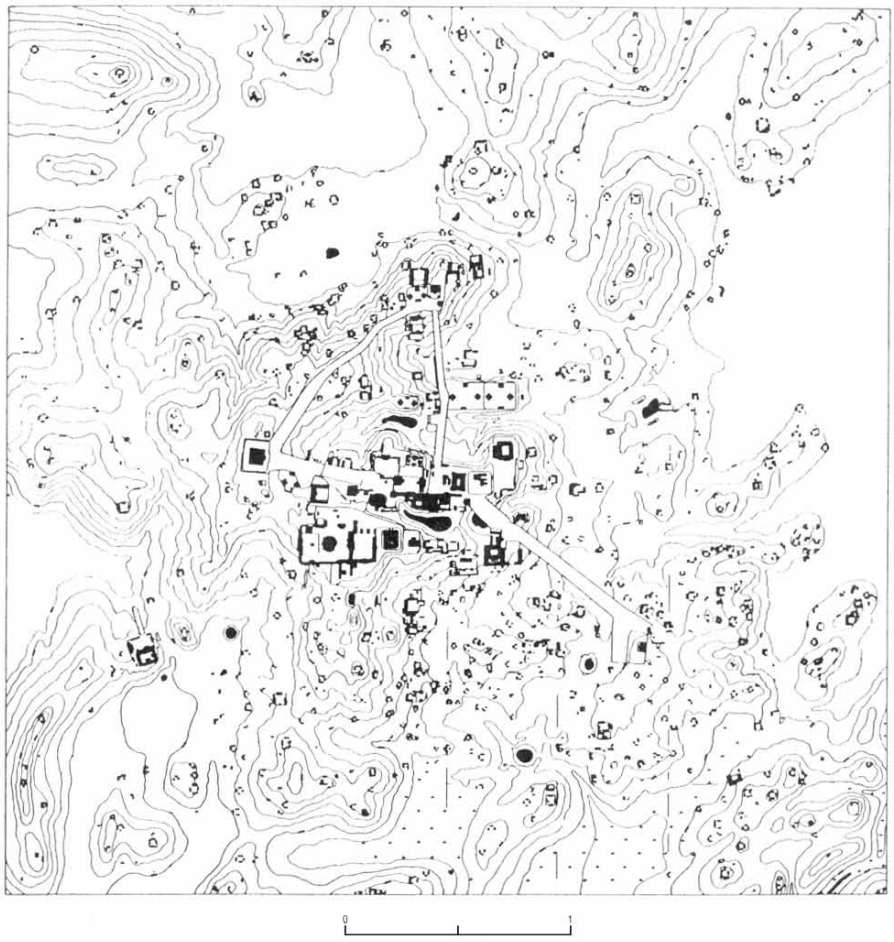

Figure 2: Tikal (Guatemala) circa 9th-10th century (after Puleston).

The form and the operation of low-density urbanism are, therefore, central to some re-envisaging of the social worlds which human beings construct and inhabit. What is important to note is that the existence of industrial, low-density urbanism is not in doubt. It may be viewed as baleful, beneficial or inevitable but it is recognisably and unavoidably present. There are debates about how to define the extent of a low-density urban settlement and even papers entitled 'The Edgeless City,' (e.g. see Lang and LeFurgy, 2003). The title succinctly articulates the prevalent unease among researchers of pre-industrial urbanism about the problem of specifying a delimited settlement space. This is not, however, a rarified, conditional necessity of classification which one can use to claim that pre-industrial, low-density urbanism does not exist – the phenomenon can be centered but edgeless – it is instead the daily pragmatic reality with which administrators, urban planners, the national census and theoreticians of industrial urbanism struggle. For there is no doubt that industrial-based, low-density urbanism exists. Indeed it proliferates – and every major industrialising society is experiencing the process. Even by the early twentieth century the Ruhr in Germany had become an interconnected network of cities and industries enclosing patches of rural land. By the 1940s it was a key battleground of the Allied bombing offensive against German factories and the urban population. By the 1950s the Randstat in the Netherlands and the Midlands of the UK were well recognised as conurbations (Hall, 1977) and then became understandable as the precursors of the megalopolis as defined by Gottman. The list of current, developing and impending megalopolises is now considerable and involves some of the greatest aggregates of human beings (see under Megalopolis in Wikipedia).

The issues for urban planning are not 'does low-density urbanism exist?' – but is it desirable or unavoidable and should it exist or persist? Contemporary low-density urbanism is at the centre of an energetic and obnoxious debate in contemporary urbanism about whether or not it is necessary and/or damaging – and whether or not it is socially or ecologically sustainable. There are strong advocates for the compact city, citing views that compact urbanism, which is frequently seen as normal and humane, is better for human social engagements, is more economical of resources and has a smaller ecological footprint.

Much in this debate hinges on the historical perspective we might take on modern low-density urbanism. If we view it as only a recent phenomenon, an anomaly in an otherwise continuous history of naturally and properly compact urbanism, then it is either a unique new way of life or an inherently undesirable, regrettable and preferably transient condition. This can easily be articulated in terms of it being a derivative of unrestrained capitalism and, in particular, a consequence of the internal combustion engine, its great manifestation the car and a conjunction with rampant middle-class self-interest. If, however, low-density settlements are part of a usual range of human residence patterns; are and were used by all the known socio-economic systems of modern humans, and if there is, specifically, a class of agrarian-based, low-density urbanism – then industrial low-density urbanism is not an anomaly but merely another example of a normal way of managing interaction and communication which happens to use industrial transport and communication technologies.

This does not mean that industrial low-density urbanism is, therefore, to be considered unproblematic or even desirable just because other cultures and economies have used low-density residence. Whether or not that is the case depends upon identifying and understanding the historical trajectories of low-density residence patterns over, at least, the past 15-20,000 years. After all, if we found repeatedly that low-density settlement patterns abruptly proliferate and as abruptly disappear we might wonder how viable it is. By contrast, if it can continue for centuries or over a millennium, as it did, for example, at Angkor (ninth to sixteenth century CE) (Coe, 2003) and Anuradhapura (fourth century BCE to twelfth century CE) (Brohier, 2006), respectively, and is resistant to external and internal dislocation, then we might view it differently. A more nuanced possibility is that we might find evidence for low-density settlement patterns becoming increasingly transient and fragile the larger they become. For example that the small low-density camps of mobile hunter-gatherers, covering only tens of hectares, are part of very stable and long-lived cultural systems, while agrarian-based, low-density villages covering hundreds of hectares are able to persist but are relatively uncommon, and that agrarian-based, low-density urbanism is rare, can create gigantism and leads to severe ecological collapse. This scenario might lead one to view the even more massive industrial low-density urbanism, with its mere century of existence, as a cause for some concern. While this may well be a valid proposition of acute unease, what is required is a theoretical framework for studying the phenomenon of low-density settlement patterns, to identify scaled changes over time, to specify the inter-relatedness of factors over differing magnitudes of operation and to make propositions that are subject to appraisal and the possibility of refutation.

We might have some cause for concern. A curious feature of the history of the past five hundred years is that no large, agrarian-based, low-density urbanised settlement was in existence in that period. Except on brief, rare occasions in the sixteenth century CE when a deteriorating example may have been observed, no case of such a city was encountered (or at least reported) by a European. And prior to that we have relatively few outsiders' reports of visits to such cities, except by Chinese diplomats and monks in the thirteenth and fourteenth centuries. This scarcity of reports by members of the other great civilisations

that habitually created compact urban settlements, no doubt contributes to a professional sense of unease among present day scholars about the existence of a general class of low-density, agrarian-based cities. But it might perhaps warn us to be uneasy, not about whether or not that category exists but why, if these cities did exist, they had ceased to be occupied by the seventeenth century and why we do not find them as long-lasting settlements in the well-known old primary regions of urban development. That they might, therefore, have been almost entirely secondary urban formations and also then displayed a capacity for irreversible collapse within the first fifteen hundred years of the Common Era is a matter of some concern. The iconic case is, of course, the Classic Maya of lowland Mesoamerica who have been generally regarded, since the 1960s, as possessing low-density cities and are considered to have experienced a collapse of their civilisation in the late ninth and the tenth centuries. In the nineteenth century, Europeans such as Catherwood and Stephens began to encounter these cities, adding them to the repertoire of cases demonstrating the 'Fall of Civilisations' – a peculiarly European post-Roman fixation. Concurrently also to find similar places in Sri Lanka and Cambodia began to provide a somewhat worrying list of 'lost' civilisations, suggesting that such demise was not perhaps rare and was a matter to be taken seriously. The great sites of Anuradhapura and Pollonaruwa were found and reported in the early nineteenth century, overgrown and abandoned in the Dry Zone, by British colonial administrators and soldiers (Coningham et al., 2007, for sources). Then in the 1860s, at Angkor, in the dense forests of the heart of Cambodia (Dagens, 1995), Belgian and French missionaries and explorers, respectively, reported the same kind of great monuments and sophisticated art, abandoned and overgrown in regions occupied predominantly by small farming communities.

We are left with the possibility that not only were these a similar kind of moral experience for Europeans, but they were also similar kinds of places, characterised by massive central clusters of spectacular monuments surrounded by a vast penumbra of occupation sites and numerous small ritual monuments scattered around features of massive engineering, in the form of embankments, water control systems and modified landscapes. Their existence is disturbing because they were places of immense beauty and magnificence, even in ruins, as portrayed in the nineteenth century drawings of Maya and Khmer cities. When we consider how they once looked, the contrasts are quite disturbing. Instead of the dense, dry forests of lowland Mesoamerica, reconstruction drawings of Maya cities – of the Pre-Classic at Mirador, as well as Classic period Tikal – portray huge, red painted pyramids rearing into the skies (Matheny, 1987). Entire landscapes are cleared of forest and dotted with innumerable timber buildings. At Caracol, the entire urban landscape was remodelled into agricultural terraces (Chase and Chase, 1994). And looming behind all these magnificent places are the vast monasteries and stupas of Anurandhapura and Pollonaruwa in Sri Lanka; the plain of Bagan scattered with stupas (Hudson, 2000; 2004); and Angkor, the vast and staggeringly gorgeous capital of the Khmer empire – described by a Chinese diplomat Zhou Daguan who visited the place in 1295–6 CE. Even his abridged officialise conveys a magic (see Harris, 2007, pp. 82–4):

> In the centre of the capital is a gold tower (the Bayon) [...]. To the east of it is a gold bridge flanked by two gold lions [...]. About a li (0.5 km) north of the gold tower there is a bronze tower (the Baphuon). It is even taller than the gold tower, and an exquisite sight. [...] Lu Ban's tomb (Angkor Wat) is about one li beyond the south gate. It is about ten li in circumference, and has several hundred stone chambers. Ten li to the east of the city wall lies the East Lake (East Baray). It is about a hundred li in circumference. In the middle of it [...] is a bronze reclining Buddha with water continually flowing from its navel (p. 48).

Logical Basis of the Case for Agrarian-Based, Low-Density Urbanism

Neither the fact that the prevalent classifications of urbanism are uncertain nor some inclination among archaeologists and historians to doubt the validity of the category of agrarian-based, low-density urbanism leads to the conclusion that there is not a real phenomenon residing under that label. It may well be that defining urbanism is problematic but it is hard to avoid the observation that there have been settlements which were less than compact and were not tightly bounded, in which functions occurred that are elsewhere associated with the label 'urban.' This opens the option that some very low-density and completely unbounded settlements also display this characteristic.

There are four basic reasons for arguing that the class of agrarian-based, low-density urbanism exists. First, the existence and prevalence of low-density urbanism in the industrial world containing much open land, makes arguments logically untenable that large amounts of incorporated open space preclude an extensive agrarian-based settlement from being labelled 'urban.' Secondly, contemporary low-density industrial cities frequently (but not always) have their ancestry in small, compact pre-industrial towns and cities. In those settlements there is a continuum of development from the compact to the dispersed form, precluding any logical possibility that the latter might somehow be placed in some non-urban category. Any attempt to do so would spite the continuity of names, functions, administrations and even public identity. Thirdly, in one region of the world – lowland Mesoamerica – the existence of agrarian-based, low-density urbanism has been proposed, is the target of immense research projects and has been affirmed for near on half a century. Fourthly, every major category of socio-economic organisation used by humans has created and sustained low-density settlements. They have contained hunter-gatherer communities, pastoralists, farmers and also mobile urban communities, as well as industrial populations. For low-density residence then to be absent from the class of agrarian-based urban societies would be a somewhat startling anomaly. Such a situation would itself need to be the topic of rigorous investigation and would require a profound and highly persuasive explanation. A claim that the organisation of agrarian societies uniquely precludes the existence of low-density settlements would be far more radical than the proposal that they once existed. Even an intermediate claim – that only small low-density, agrarian-based urban settlements existed – creates the need to explain why small, medium and large cases occur for other socio-economic categories but, uniquely, not for agrarian-based urban communities. Indeed the most parsimonious and least radical argument is that low-density, agrarian-based urban communities have existed across a wide range of settlement sizes and that this is consistent with the behaviour of human beings who use and have used them in other major socio-economic ways of life. I will discuss these points in reverse order.

Low-Density Settlement Patterns

Such settlement patterns occur worldwide in every major class of human socio-economic organisation. Low-density dispersed occupation is found among hunter-gatherers, e.g. the Australian Aborigines of the central deserts of Australia (Fletcher, 1991). Jim O'Connell (1998) has lived and worked in such settlements, for example at Bendaijerun Ridge in the 1970s. Individual domestic units camp widely spread out with generally 10–50 m between their fireplaces. But the aggregate patch of occupation is still clearly apparent since the regional occupation densities in the desert are diminishingly low and the adjacent inhabitants clearly recognise themselves as part of one social entity, however transient it may be. In Japan the Ainu, a complex hunter-gatherer population, are also recorded as living in adjacent, widely

scattered structures on valley flats (Watanabe, 1973). The Plains Indians, the horse-using agro-hunters of the grasslands of North America, aggregated into great seasonal low-density encampments, most famously on the Little Big Horn in June–July 1876 where they brought together sufficient warriors and rifles to obliterate Custer's 7th cavalry in a head-on clash (Fletcher, 1991).

Pastoralists make frequent use of this settlement form. The great examples are, of course, the Mongols of Central Asia (Fletcher, 1991) and the urbanised agro-pastoralists of Ethiopia. In 1896 a British Army engineer mapped the moving capital of Menelik II just as it slowed down and stopped, to become Addis Ababa (Figure 3). In its transition it contained 30–40,000 people and covered about 40 sq km. In due course, the great capitals of the Achaemenid and Sassanian rulers must surely join the well-known, mobile, tented capitals of the Mughals of India in this category (Sinopoli, 1994). Sedentary agricultural communities also use low-density settlements – most obviously in West Africa, where I have lived in such settlements among the Lo-dagaba of Northern Ghana, listening, on hot, late afternoons, to the xylophones pounding out their rhythm across endless dry fields around the great compound houses. The most comprehensive study of such a settlement system is Netting's work on the Kofyar of Nigeria (Netting, 1968).

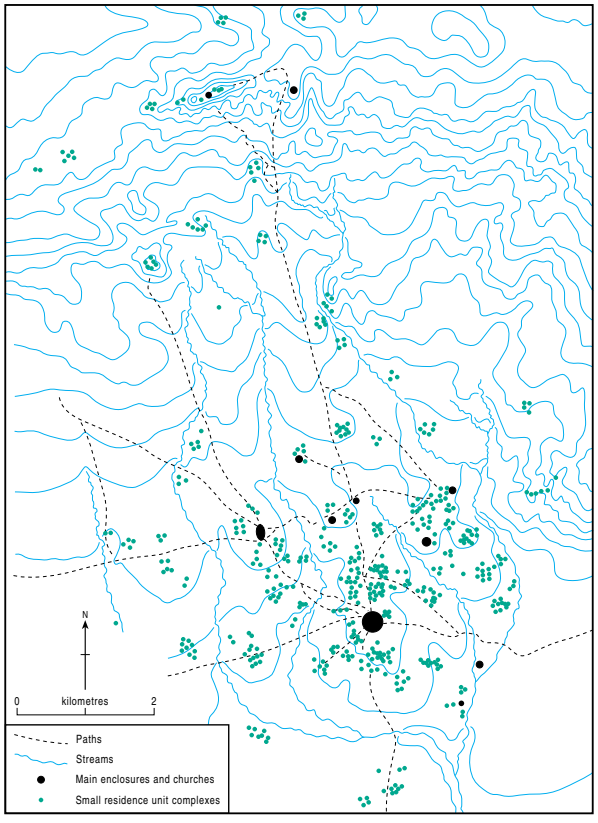

Figure 3: Addis Ababa (Ethiopia) in 1896 (after Gleichen).

These examples are part of a continuum of settlement patterns ranging from the extreme high densities of over 1000 p/ha in !Kung and Mbuti camps all the way through to low-density dispersed settlements with overall densities of 5–10 p/ha or even less. This spectrum can now be placed in a global cross-comparative milieu – an interaction-communication matrix in which magnitudes and relationships can be assessed (Fletcher, 1995). Contrary to common, tacit assumptions there are no general, worldwide, modal residential density values, e.g. the supposed norm of 100 p/ha for urban communities. There are average densities just as there can be average anything, but the average is not a modal value. Indeed overall residential

densities lie in the lower ranges rather than higher (Fletcher, 1995) and there is a distribution from rare high-density to more common low-density.

This distribution is of critical importance because numerous settlements have operated at overall densities lower than the maximum possible, overall rural regional densities. In India and China some predominantly rural regions of immense extent, such as Bengal, had overall densities as high as 5–7 p/ha in the late nineteenth and early twentieth centuries (Fletcher, 1995) before industrial driven urbanisation began. What I pointed out in the Interaction-Communication Stress Model is that settlement extent must therefore, potentially at least, be unconstrained in low-density occupation patterns. By contrast, the areal extent of settlements with overall densities higher than 10 to 20 p/ha is tightly constrained. The great compact, pre-industrial capitals of the world, such as nineteenth century CE Edo in Japan, ninth century CE Tang Dynasty Chang-an in China or Abbasid Baghdad in the seventh century CE, were unable to exceed areas of about 75–100 sq km with residential populations of about 1 to 1.5 million (Fletcher, 1995). From the second to fifth centuries CE, Rome only got to 18–20 sq km or so. Most European cities after the sixth century AD, with the exception of Constantinople (circa 20 sq km) and Cordova (circa 40 sq km), did not start to exceed 5–10 sq km until the sixteenth to seventeenth centuries and even then few exceeded 15 sq km until the eighteenth century.

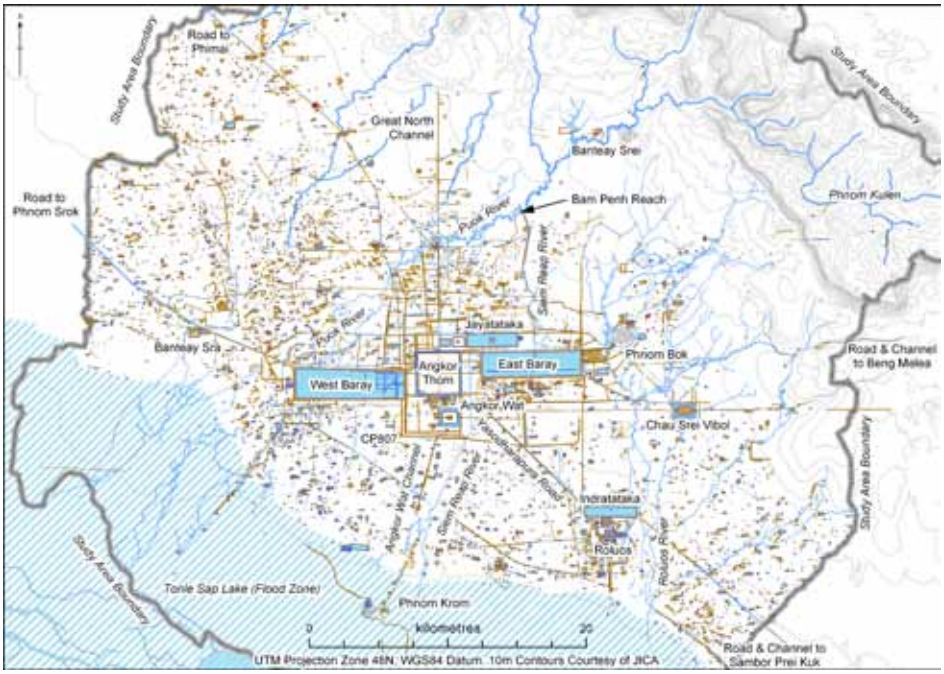

Figure 4: Angkor (Cambodia) circa 12th-16th century (Evans and Pottier).

By contrast, Maya Tikal is now given an estimated area of 200 sq km (see recent survey by Webster et al., 2007), while the Angkor urban complex has a central zone of major temples that covers about 200 sq km or more. The total urban complex of Greater Angkor covers circa 1000 sq km (Figure 4) (Evans et al., 2007; Fletcher and Pottier, 2002; Pottier, 1999). As a general observation the low-density, dispersed settlements of hunter-gatherers, agro-pastoralists, pastoralists and farmers can habitually cover far larger areas than the denser settlements of their socio-economic equivalents. Non-literate Cahokia at 12 sq km (Young and Fowler, 2000) and Chaco Canyon (Vivian, 2002) at way more than that, are outstanding instances, as are the *oppida* of late first millennium BCE Europe with areas of up to 7 to 10 sq km (Wells, 1984). When the non-literate West African 'urban' settlements of the tropical forest belt of Ghana, Dahomey and Nigeria (Fletcher, 1998; and see Kusimba et al., 2006) – such as the Yoruba towns – and the nineteenth century Baganda capital of Kampala on Lake

Victoria are added, some serious attention needs to be paid to low-density settlement patterns. Though this paper will focus on the urban centres in Mesoamerica and South and South-East Asia, with literate administrations, it is apparent that a broader discussion of extensive large low-density settlements, in tropical regions with some urban functions, will soon be essential. There are critical issues to consider about why such urban centres tended to occur largely but not entirely in tropical forest environments, how they operated and what prevented the literate ones from functioning after the sixteenth century.

Low-Density, Agrarian-Based Urbanism and Mesoamerica

Having shown that low-density settlements are quite normal for human communities across a wide spectrum of socio-economic systems, we now need to look closely at the issue of agrarian-based, low-density urbanism. If agrarian urban societies could not do so, then a paradox would exist that the agrarian urbanism which was able to produce regional empires, e.g. in China, as large as, and indeed large for far longer than even industrial states have so far managed, could not apparently produce and sustain low-density extensive settlements which were capable of carrying out standard urban functions. Fortunately, I do not have to argue this matter very far since I intend to point out that a case for agrarian-based, extensive, low-density urbanism already exists in lowland Mesoamerica, and has been advocated by some very eminent and extremely energetic researchers.

As pointed out at the start of this paper, low-density, agrarian-based urbanism was first recognised for the Maya from the 1950s onwards. This work has been a signal and highly original, radical contribution both of North American archaeological scholarship – and of the traditions of archaeological practice it has nurtured in the Mesoamerican nation states. The history of the research has however, been a little curious. The European explorers in lowland Mesoamerica in the later nineteenth century appear to have recognised that the great abandoned temples were surrounded by abandoned occupation, as one might expect if you had walked your way into the sites following local guides. Yet that association seems to have weakened in the early twentieth century, perhaps as travel to the pyramids moved on to made-roads and reduced the engagement with the surrounding occupation. By the early twentieth century, the focus on the calendric and astronomical hieroglyphs and on the temples had led to a view by eminent scholars such as Morley and Thomson of the Maya as theocracy with the priests living in 'vacant ceremonial centres' (see Fash, 1994). This combined with a view of the Maya economy as limited to a slash and burn, swidden model and therefore not able to support large populations.

Key work on the settlement patterns was initiated through the seminal influence of Willey from the 1950s onward, especially through the example of the Belize River Valley and at Altar de Sacrificios, then at Seibal and Copan (Sabloff, 1990). That residential densities were quite high around the temples was shown in the 1960s and 1980s for Tikal by Haviland and Puleston, respectively, and reinforced by surveys at Dzibilchaltun, Copan, Becan, Coba and Calakmul (Sharer, 2005). Also in the 1980s the evidence for more intensive and regulated agriculture began to be reported and discussed, such as drained swamps, raised fields, hydraulics and terracing (see Fedick, 1996, on the debates), providing an economic base for larger populations.

By the later 1980s the debates revolved around designations of the Maya settlements encapsulated in the paper by Sanders and Webster (1988) and Michael Smith's reply (1989). As Smith summarises the debate (1989, p. 454), Sanders and other researchers who focused

on the Mexican highland cities saw 'cities as settlements with a large, dense population and social complexity [...] other less densely populated centres (including those of the Classic Maya) are viewed as something less than urban.' Smith notes that in the 1988 paper Sanders and Webster changed that position to incorporate the functional definitions of economic geography that Blanton, Redman and Marcus had begun to advocate in the 1970s, especially the approach of Fox which allowed 'regal-ritual' centres to be designated as urban – at least the big ones (see Smith, 1989, p. 455). Given Wheatley's great study 'The Pivot of the Four Quarters' in 1971 with its argument for a ritual origin to urbanism in South and East Asia (since refuted), it is hard to see how any other position could have been sustained.

Though the somewhat acrimonious debates continued, e.g. on the vexed issues of how to classify small and large settlements, the urban status of places such as Copan and Tikal was recognised and the role of Maya cities in state-like polities has been vigorously advocated by researchers such as Chase and Chase, and Haviland. In the 1990s and into the twenty-first century, the focus on the settlement patterns, demography and economic operation of the Maya cities continued, with increased focus on remote sensing to study settlements and economies. The problem of defining the edges of Maya settlements has been both partially confronted and avoided.

Industrial Low-Density Urbanism

Curiously, the advocates of Maya low-density urbanism did not refer to the burgeoning low-density cities of industrial North America or the industrialising world for an argument that the category 'urban' had necessarily to include low-density settlements, because – in practice – by the 1950s and 1960s it already did. Equally curiously, the neglect is mutual and urban researchers today debate whether low-density dispersed urbanism is a unique and a mere transitional phase (Davis, 2006). The disconnect is surprising because there were also commentators in urban anthropology in the 1970s and 1980s, such as Arensberg, who addressed this issue, coining the distinction between 'stone cities and green cities,' which Graham used as the title of her 1999 paper. But Graham appears to be one of the few commentators at that time who were looking to other regions – though her referents are to West Africa. As she rightly remarks 'expanses of green in tropical cities ought not to be interpreted as evidence of an underdeveloped built environment, but an indication that more sophisticated approaches are needed to heighten perception and interpretation of an alternative urban pathway' (1999, p. 191). She then goes on to refer to the modern city suburbs but in a curious disjunction from the 'cities.'

Perhaps this disjunction is part of the issue because the discussion of low-density urbanism in contemporary contexts is not about whether or not it exists but whether or not it is desirable. Negative connotations of urban 'sprawl' and the view that dispersal leads to wasted resources, social isolation and alienation are the issues. Suburbs have the readily negative, dull, imputation of a bland landscape inhabited by smug middle-class elites, along with a paradoxical association with deteriorated housing estates and severe social problems of domestic isolation. The serious riots in the *banlieu* of French cities in 2007 demonstrate that there are real issues to be confronted and a real snobbery in France, by inhabitants of 'La Cité, about the occupants of the outer suburbs. That the suburbs cannot be ignored, and cannot be viewed as somehow separate from the central urban area simply in terms of scale, is readily apparent in Sydney, where the growth of the suburbs has now moved the population centre of Greater Sydney westwards beyond the edge of the 1940s' city.

Perhaps Mesoamerican archaeologists wisely did not wish to be embroiled in negative debates about modern industrial urbanism while making what was considered to be, and in some quarters is still considered to be, a radical claim that cities are not by definition necessarily either compact or bounded. Also, from an archaeological perspective, the extent of a settlement includes its expanding skirt as well as its core. It is the total patch of occupation on the landscape, how it developed and how it was divided up that is of concern, not being judgmental about the quality of social life in outlying areas of the settlement. We would be quite surprised if central Tikal expanded substantially in the fifth to the sixth century but the outlying occupation did not. And we need to note this because we ascribe significance to contraction – for instance during the hiatus of Tikal's political disasters of the seventh century. For an archaeologist, continuity of history or its discontinuity is significant. So the observation that comparatively low-density Greater London in the 1960s was a direct descendant of densely compact eighteenth century London is critical to our recognition that there is no single standard or constant overall density for cities, even in the European tradition. The East Coast Megalopolis is the direct descendant of numerous compact, seventeenth century towns and cities of the eastern seaboard of the USA with an ancestry back to the European colonisation in the sixteenth century. Each part of that very low-density giant also has a clearly recognisable continuous urban growth, as can be seen for Greater New York, which covered around 13,000 sq km in the 1980s with a population of 10 to15 million, at an overall density around 10 p/ha. Yet it derives by expansion from sixteenth century New Amsterdam (later New York), that in 1668 had a population of about 1000 and a density of around 50–70 p/ha, which has incorporated adjacent rural land and urban settlements. The industrial urban world now contains edgeless dispersed cities. Low-density urbanism incorporates extensive areas of rural land and in Asia a name has even been coined for them – *desakota* (see discussion in Davis, 2006).

Review and a Global Perspective

The definition of the *desakota* in South-East Asia helps to close the circle of comparisons, because in the 1950s and early 1960s Michael Coe pointed out that there was some equivalence between the great temple centres of the Maya and the Khmer. What is now apparent is that the equivalence extends far beyond the monumental centres to include extensive suburbs. Just as the Mesoamerican archaeologists were starting to focus on Maya urbanism, a landscape survey had started at Angkor in Cambodia in the 1960s, under the direction of B-P Groslier, to map in detail the area beyond central monuments (1979). Tragically, it was halted by increasing conflict, but the insight of Groslier into Angkor as a hydraulic city of suburbs bound together by a water management network was in print by 1979 in French in the journal BEFEO. By 1978 Bennet Bronson was extending the comparison of tropical forest cultures to include Anuradhapura, one of the medieval Buddhist capitals of Sri Lanka. The limitation was, that although it and Bagan in Myanmar and Angkor have been consistently referred to as urban since the early to mid twentieth century, they were viewed, even in the 1990s, in terms of their walled central enclosures (labelled the city or sometimes the citadel), using a standard Western compact pre-industrial model of urbanism.

Surveys at Anuradhapura (Coningham et al., 2007) (Figures 5 and 6) and Bagan (Hudson, 2004) (Figures 7 and 8), and more recently at Angkor (Evans et al., 2007), have shown that these extensive sites need to be understood in terms of low-density residence patterns. The surveys are transforming our understanding of the urban centres, just as happened with the analysis of Maya settlements from the 1950s and 1960s onwards. In the context of southern Asia these great urban centres have been placed in a larger comparative framework by Miksic

(2000) in his discussion of orthogenetic and heterarchical cities, the former often large, usually organised on a spatial layout such as a partial grid, and operating as the locus of ritual state power; the latter more commonly small, with compact, variegated spatial layouts and a strong mercantile function. The former are more common in mainland South-East Asia and the latter in island South-East Asia, but the circa 100 sq km site of Truwalen on Java appears to be a low-density complex with mercantile and substantial ritual functions. The extensive scatter of shrines, from Borobudur to Prambanan around the flanks of Mount Merapi, suggests a strong role for the orthogenetic form in island South-East Asia prior to the ninth century CE. Stark (2006) has recently reviewed the first millennium CE contexts in South-East Asia in which urbanism began to develop and has made clear that the tangled history of maritime trade and inland states based on rice wealth is yet to be unravelled. An entire suite of urban

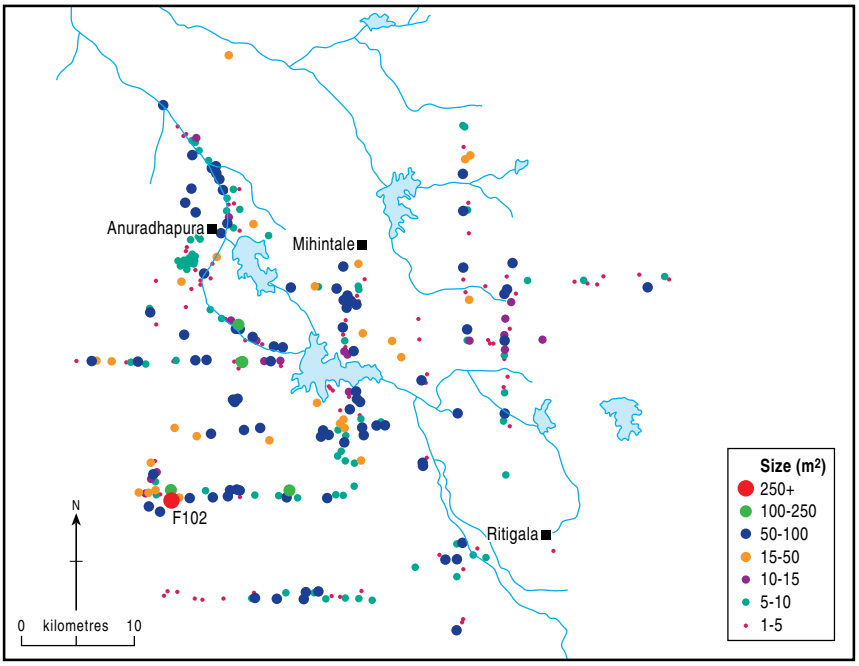

Figure 5: Anuradhapura (Sri Lanka) circa 12th century. Distribution of occupation deposits in survey area (from Coningham).

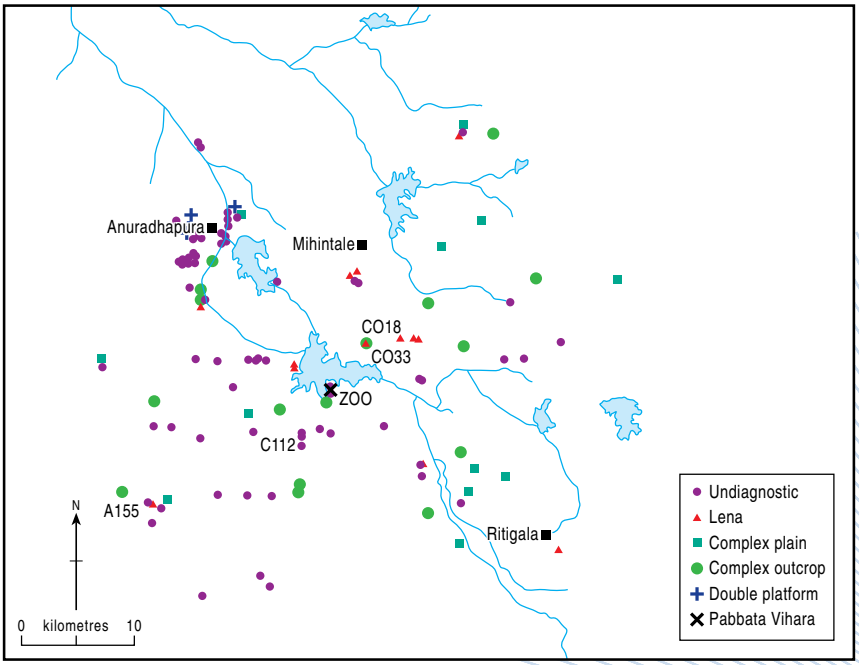

Figure 6: Anuradhapura (Sri Lanka) circa 12th century. Distribution of monasteries and buildings in survey area (from Coningham).

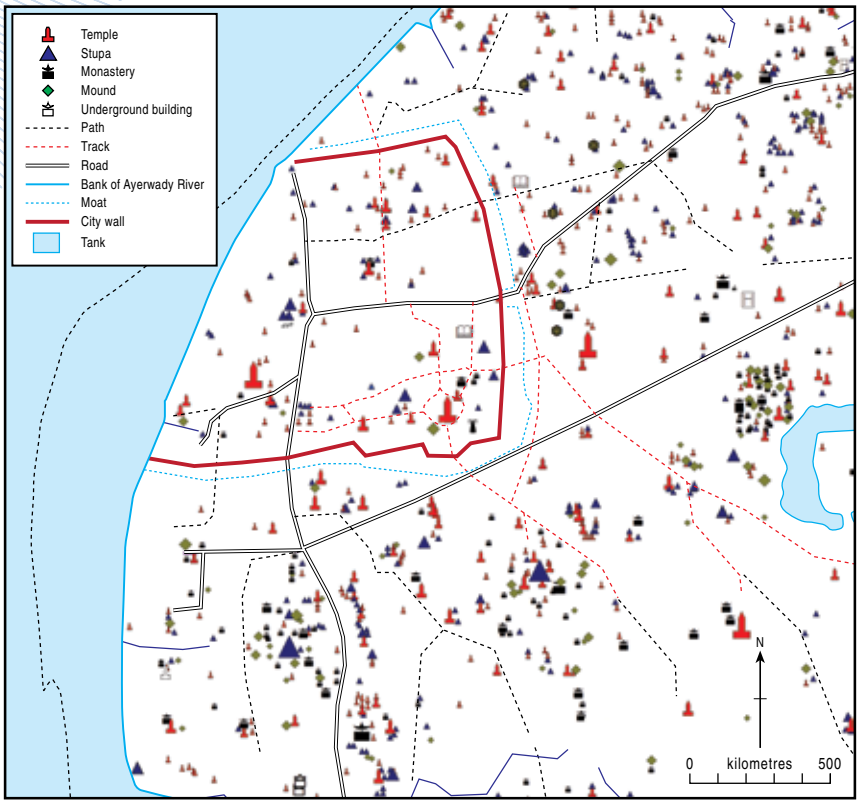

Figure 7: Bagan (Myanmar) circa 13th century. Central area (from Hudson).

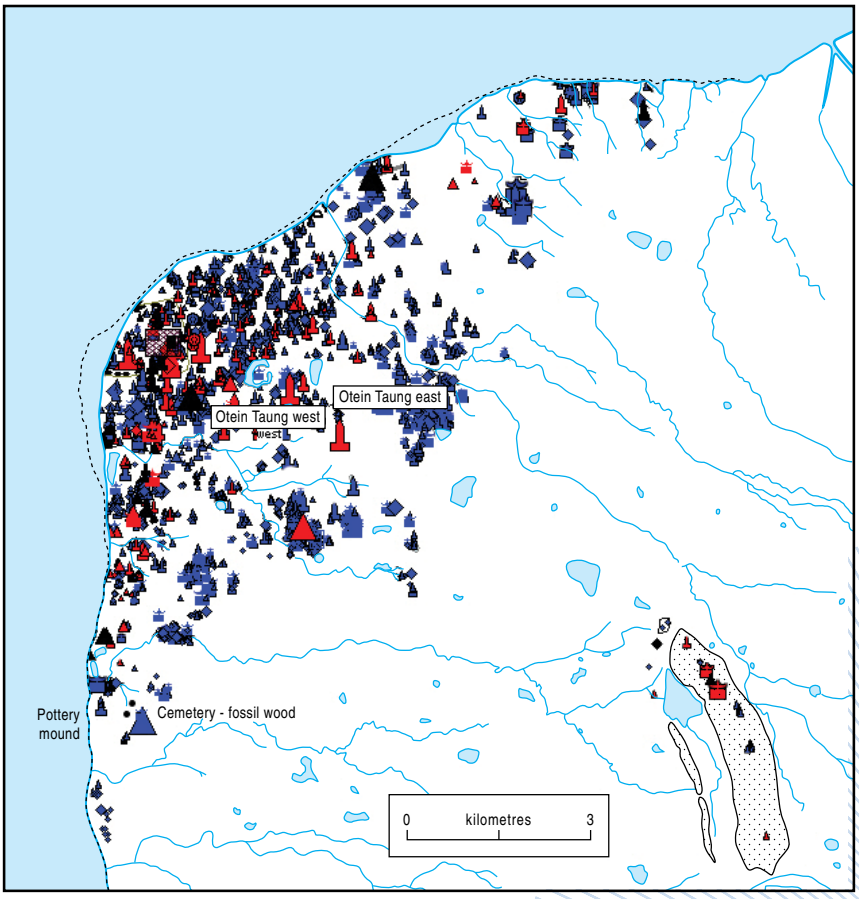

Figure 8: Bagan (Myanmar) circa 13th century. Overall urban complex (from Hudson).

settlements of a distinctive low-density form needs to be investigated in Southern Asia, including places like Khahajuro (950–1050 CE) in India; My Son – the great Cham centre of the fourth to the thirteenth centuries CE – in the Hoi An valley of Vietnam; and Sukhothai – a capital in Thailand from 1238–1438 CE – in the northern Chao Praya basin, and needs to be brought into comparison with the rapidly expanding data from Mesoamerica on the Puuc sites of the seventh to eleventh centuries CE, and Calakmul and Caracol. Of especial significance is the end of low-density urbanism in the Maya world, in Sri Lanka and in central Cambodia. The eventual demise of the great low-density urban centres seems to have led to the almost total disappearance of any significant urbanism in the heartland of these former civilisations and indeed to a marked decrease of occupation in the regions, to the point that terms such as 'abandonment' are used to describe what European visitors found in the nineteenth century.

Conclusions

We are left with the elementary point that low-density urbanism is a feature of the industrialising world and that many of us live in such cities. These low-density cities have a direct continuity with, and derive from, earlier, non-industrial, compact and often bounded urban centres. A claim for historical or classificatory disjunction is untenable. Given, therefore, that numerous other cultures are known to have built, occupied and sustained low-density settlements and that at least one region, the Maya area of lowland Mesoamerica, is considered to be characterised by low-density, agrarian-based urbanism in its Classic period, we should consider the debate about the existence and substance of agrarian-based, low-density urbanism to be over. Several topics of discussion now follow. We need to know more about low-density agrarian urbanism – where did it occur on the planet, when did it exist and for how long, how extensive could such cities become and how and why did they cease to function? These are vital pieces of information for historical enquiry in its own right but they are also essential for a perspective on contemporary and future paths of urbanism, one of which will certainly be towards low-density dispersal. The essential insight provided by the agrarian-based, low-density cities is that they could last for half a millennium or more and were characteristic of their cultures. Low-density urbanism cannot therefore be regarded as a transient anomaly and we must look at the future of industrial urbanism accordingly. We also should not too readily conflate the explanation of low-density industrial urbanism with the impact of mechanised transport. This is not to argue that it is not a significant factor. But once we know that low-density urbanism, on quite a formidable scale, is possible in the agrarian world, entirely without mechanised transport, then we should reappraise the way we explain the industrial urban equivalent. Finally, we should assess with some care the relationship between low-density urbanism and the environment since the great, agrarian low-density cities are famous for their demise and the abandonment of their core metropolitan region. Clearly, if this is a generic consequence of low-density urbanism then we should be very concerned. But we should beware of a simple, 'similarities' approach to global cross comparisons and instead focus on the 'complimentary differences' that are revealed. The agrarian low-density cities generally grew their food within their urban space and therefore impacted directly on the local environment. They were also located in tropical forest regions with marked seasonal differences in rainfall. Agrarian low-density cities that do not correspond to one or more of these conditions are therefore crucial test cases for the specific explanation of low-density urban collapse. What should be added to this appraisal, and is of crucial significance for modern and future urbanism, is that the great agrarian low-density cities such as Angkor were also enmeshed in a massive and intractable infrastructure whose scale and inertia resonates into the modern world. If the infrastructure of low-density cities is inherently liable to be or to become a constraint on the viability of a city's daily life then this is an issue of some serious consequence for our engagement with a future of giant, low-density cities.

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